CAREBS Coalition to Advance Renewable Energy through Bulk Storage

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California Energy Commission
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Subject: Workshop on Evaluating and Capturing Benefits of Renewable Energy for California

The Coalition to Advance Renewable Energy through Bulk Storage (CAREBS) urges the commission – in this workshop as well as for its Integrated Energy Policy Report investigations – to give more attention to in-state and regional, large scale pumped storage hydroelectric (PHS) and compressed air energy storage (CAES) systems to deliver more renewable energy to more Californians more of the time. In sum, bulk storage systems *magnify* the health and environmental benefits of renewable energy for California.

With the potential retirement of significant fossil fuel power stations, the addition of vast quantities of renewable energy to meet state RPS and carbon mandates, as well as new gas-fired capacity to "fill-in" around renewable facilities, it is imperative that the state begin planning immediately for economical, flexible, ultra-low or no emissions facilities that will provide the *balancing function* [1] for the state's electrical system. Balancing can also be considered "shock absorption" for the system. The state is rapidly shifting to generating resources that have less inertia and response capability (this includes both renewable energy and gas-fired resources) than traditional power stations. Bulk storage is the only solution set capable of providing all of the components of the balancing function. Unlike generating resources, storage can add load to the system or absorb load from the system and return it (unlike synchronous condensers, for example). CAES and PHS are large-scale options for balancing the grid that are commercially available today and are consistently evaluated as the most economical storage technologies. Virtually all of the distributed storage technologies must be

substantially scaled up and therefore are not ready for large-scale deployment and add significant technology risk. *Bulk storage can be deployed now with no additional subsidies or mandates*.

Bulk storage systems do, however, need policy gaps fixed. Our recommendations are: (1) acknowledge the growing importance of balancing to grid operations with significant renewable capacity; (2) acknowledge that the benefits of providing balancing services accrue to all ratepayers in the jurisdiction; (3) ensure that utilities and CAISO make the full costs of balancing transparent to all stakeholders; (4) require that integrated resource planning, capital budgeting, cost evaluations, and grid modeling exercises determine the need and costs for balancing *separately* from generation, transmission, and distribution needs and costs; (5) allow all assets that can provide balancing services to compete for the privilege of providing them; and (6) allow investment recovery for providing balancing through a similar mechanism used for multi-value transmission projects.

The ultimate goal is to lower the cost of electricity to ratepayers while providing the greatest range of benefits. *Bulk energy storage transforms intermittent, variable renewable energy into a firm, dispatchable, and fully predictable source of electricity*. CAREBS believes that additional deployment of large-scale bulk storage resources, in parallel with the expansion of renewable energy, will allow California to capture the environmental and health benefits of renewable energy while mitigating its operational impacts on the grid.

Respectfully Submitted,
Jason Makansi, Executive Director
The Coalition to Advance Renewable Energy through Bulk Storage

[1] *Getting Bulk Energy Storage Projects Built: Monetizing the Balancing Function for Electricity Grid Operations*, a policy brief and proposal issued by The Coalition to Advance Renewable Energy through Bulk Storage (CAREBS – www.carebs.org), March 2012.